

JAN/87

\$1.50

ZX-Appeal

Vancouver sinclair users group

next meeting:

KILLARNY COMMUNITY CENTRE
6260 KILLARNY STREET
VANCOUVER

FRIDAY

JANUARY 9/87

ZXAPPEAL IS A MONTHLY
NEWSLETTER PUT OUT BY THE
VANCOUVER SINCLAIR USERS GROUP.
FOR MORE INFORMATION ON THE
CLUB AND ZXAPPEAL SEE THE BACKCOVER.

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sinclair QL



....coming soon

Hope everyone had a 'Cool Yule' and didn't OD on turkey, stuffing, et al. We're into a New Year and as the long dark winter nights are certainly here and the Season's festivities are behind us we can finally get down to some serious keypunching trying out those new programs Santa left under the tree. If a cassette or two did not come ricocheting down your chimney, look up the list of suppliers printed within and order away. Harvey T. appears with his usual QL musings. Those members ordering the QL kit will be looking for Harvey's past articles after their kits arrive. New Member Vince L. drops by with a version of the Audio Booster, of a few issues ago, which he says may be safely used with the 1000 without causing unnecessary smoke. The Prez has something to say...so listen up. Ken A. also passes on the results of his latest forays into Sinclair Basic. New Member Joe Jenkins of Amarillo, TX, sends along a little graphics gem. The NETWORK Reprints are particularly bountiful this month with some items sure to be of interest to all. On the back page is a form for those members with Hardware problems they would like the Hardware Group to address. If you have a hardware query or are just uncertain how your machine works, be sure to take advantage of the knowledge and brainpower available. The Hardware Group will be more than pleased to receive any and all questions.

EDITOR'S EDITORIAL:

Last meeting Ken asked for a volunteer to take on the small job of Recording Secretary. We had a good turnout of over 30 members but not one member would volunteer to carry out this really simple task. Later on in the meeting a member rose to state that he was unsure whether he would be renewing his membership as he was not sure of 'what he would be getting for his money.' It seems that most of the members of this club have forgotten what this club is all about. You don't 'get' anything for your membership dues. The dues go toward paying the inevitable costs that arise when 30-40

people of mutual interests arrange to meet to discuss and exchange mutual points of view. The Group Newsletter serves as a forum to continue this exchange as well as allow distant members to participate. The theory behind this and any other common interest club is Contribution, not Consumption. I, as the Newsletter Editor, spend many hours contributing to the viability of this club and I can say the same for Ken, both as Pres and as a Newsletter Contributor, as well as the other few members who contribute. But I'm afraid that this can't be said of the majority of the members. Some would say that this is the way of the world - 10% do while 90% sit on their hands. Well I don't accept this. You joined this club for a reason - because you shared a common passion for a quite uncommon machine. So start sharing! If you don't do your share, who will? One day you might find yourself saying "what ever happened to that computer club I thought I belonged to." It probably ceased due to lack of interest when you weren't looking. Nuff said?

BITS & PIECES.....

...the Book Warehouse on Broadway has a number of TS related books at incredible prices. This member found some additions to his library at \$1.99 & \$2.99 each but was greatly outdone by Ken A. who picked up a number of QL related books at 9 CENTS each. He said he'll be making belated Xmas gifts to the QL kit buyers. If you can't find any be sure to ask if any are 'in the back'.

...speaking of books, ZEBRA SYSTEMS still has lots of stock of the titles they're offering at \$5.00 each, 2@ \$9.00, or 3@ \$12.00.... A great bargain.

...be sure to attend this month's meeting. John B. will be demoing all his WEYMIL wares and will be offering special pricing to members placing orders at the meeting.

...the TIMEX REPAIR story has a very happy ending. As was reported last time, my 2068 suffered smokeitis and was sent to the hospital for treatment. 34 days later a brand new replacement was left behind the screen door. The service side of the TIMEX Computer story isn't over by a long shot. I'm impressed!

...Ex-member and now Robot guru Karl Brown is offering his renowned 'Build Your Own Robot Course' one last time. Call V.V.I. NOW to reserve your spot because , as we all know, this course is very popular and when this one is over - that's it!
...speaking of ROBOTS, the first meeting of the new year of the Robot subgroup, better known as the VANCOUVER ROBOT CLUB will be at the usual time and place. (Al Wright's office, #611 - 470 Granville St. on Wed. Jan 21/87 at 7:00. If you come after 7:00 you must press the buzzer until the maintenance guy comes to open the door. It would be easier if you just came before 7:00.) If you don't have a Robot but want to see what it's all about feel free to come.

...the QL kit pricing list has arrived and members are scurrying off to various banks with passbook in hand ready to do massive injury to savings accounts. Me too! Next issue should see much to report.
...if you're in the market for some software or hardware add-ons don't forget our own DAVE ROSS. I was over at his shop the other day and he has LOTS of good stuff - good prices too. Give him a call at 874-1756.
...again, make sure you get to the next meeting. You could be richer for it. No, Virginia, not money...a DOORPRIZE! All attending members will have a chance at a draw for either Cruncher 1000 or Cruncher 2068 -- your choice, if you win. SEE YOU THERE.

RENEWING MEMBERS:

NEW MEMBER:

J. Brohman, L. Montminy, H. Slot
K.Abramson, E. Begin, B.Rutter

Jim Hunkins, Rapid City, SD

Remember to renew at the meeting if
you received the dreaded EXPIRY
NOTICE.

Meeting date....

JANUARY						
SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

PRESIDENT'S PRATTLE

A NEW YEAR'S MESSAGE FROM KEN ABRAMSON

Our last meeting of Dec 12, 1986, was well attended by approx. 30 members. Toward the end of the meeting, an extremely interesting discussion was initiated by a member who obviously felt that he had to get something off his chest. He expressed the opinion that the newsletter did not have enough 2068 articles in it (compared to the number of ZX81 articles), and that there was not enough club activity or support for 2068 users. While I disagree with his statement regarding the newsletter articles, I wish to thank him for having the courage to openly express his feelings at the meeting. It was not an easy thing to do and I hope that it may be the first step in increasing activity in 2068land, and for that matter, throughout the club in general.

The discussion that ensued touched on some vital questions. "Why should I stay in the club if I'm not getting enough out of it?" "Can't you put more 2068 articles into the newsletter?" "Why aren't there any activities or projects for the 2068?" Rod and I mulled over some of this discussion until Boxing Day, when we finally vented our independent views.

Somehow the expectations of club members have changed. So has the number of participants and the overall level of participation. Remember back in '83 when almost everybody brought their computers to meetings? Remember fifty people crammed into a VUI classroom or into John Brohman's common room? Remember Karl Brown's fabulous 'sound & light' shows, and his prolific contributions to past newsletters? Remember all of the other LOCAL contributors to our newsletter and to our monthly meetings?

We have lost a number of members who have drifted to other computers. We diehards who are left need support even more urgently than ever before! But who will provide it?

There's the rub! USUG was established as a non-profit organization for the MUTUAL SUPPORT OF ALL SINCLAIR COMPUTER USERS in the Greater Vancouver area. What does MUTUAL SUPPORT mean? It means that USUG MEMBERS SUPPORT EACH OTHER ACCORDING TO THEIR NEEDS AND THEIR KNOWLEDGE.

If you feel there are not enough 2068 articles in your newsletter, PLEASE WRITE ONE! How many LOCALLY WRITTEN 2068 articles have you read in our newsletter over the past few years? There is a limit

to the number of import articles that should go into YOUR newsletter. There should be more MUTUAL SUPPORT in the club, and this means more participation by YOU.

If you want to just sit back and RECEIVE a mediocre newsletter and few other services, then sit back with your open hand, but be prepared to be somewhat disappointed. USUG is a MUTUAL SUPPORT club based on VOLUNTARY participation. If nobody participates, nothing happens -- this is true of life in general. Judging from a number of U.S. users that have joined USUG, we have a great newsletter and some real computing talent in our present membership. What we need now is more widespread participation (and more locally written articles for the newsletter).

Please make a New Year's resolution: ONE ARTICLE OR PROGRAM PER MONTH. "But I'm not a writer!" I hear you cry. You don't have to be. You can just dust off some of your SHORT, ORIGINAL or ADAPTED programs and send them in to us (if adapted, cite the source). You can also write to us and describe what you are working on, or write a letter to the editor describing any advice you need in specific areas. Hand articles to Rod at the next monthly meeting, or mail them to him directly. He can't continue to produce a first rate newsletter from nothing but import newsletters.

Regarding other activities, we also await your SUGGESTIONS & PARTICIPATION. If you know of interesting speakers who might enhance our meetings, please let me know. Do you have a friend in some computer related business? Think about it.

Please, if you want the club to take on a project, make a suggestion AND volunteer to serve on a committee to get things going, or at least volunteer to collect names of interested people. Yes, there are problems in implementing any project, but what you will learn in your efforts will make your participation worthwhile. I don't think that I have ever participated in a more exciting exchange of ideas as when I attended a few sessions with 'the hardware group' to discuss our new speech synthesizer project (which, in case you didn't know, is ZX81 and 2068 compatible). Even if the project bombs out (just kidding, Wilf), the idea exchanges were just fabulous.

Was the discussion at the last meeting a new beginning or was it the beginning of the end? Please! Do something about it! It's YOUR club. Participate!!! (Rod & I will be twisting arms, so be prepared).

9999 STOP
KEN ABRAMSON

The meeting was opened by the Ken, the prez, late as usual. A request was put to the group for a secretary & an unearthly silence fell. Out of the unfathomable darkness, arising from an unplumbed depth I found myself growling give me some paper and I awoke with a pen in my hand. I am & I remain Your Humble Scribe. Ken then continued the meeting with a description of his Zebra sound board containing the software which censors cusswords. The quality of sound was described as generally not the equal of the the clubs own ZXSound.

Rod, the treasurer & editor, described the why of our dumping the Bank of Nova Scotia for the more affordable & sensible New Westminster Credit Union. We presently have \$315.00 in the account. Rod then raised the prospect of raffling off a QL. After much discussion, a vote carried the motion with the sole dissenting voice being the one sensible person present. Rod is working out the details, by default. Rod then begged for more newsletter articles & got sneaky by suggesting a monthly "WHAT I DO WITH MY COMPUTER" article by each member of the group. Everybody thought it was a good idea, nobody volunteered. Ken wondered whether a fill in the blanks version would make it easier for the less voluble among us.

The matter of Killarney membership cards was shelved indefinitely.

Wilf, the hardware wunderkind, reported that the hardware group had met Sunday. The new speech board is probably going to be ready for the next group, with cost in the range of \$7.00 plus or minus \$5.00 depending on whether holes are drilled or not. There will be an extensive newsletter article about this board. There were 15 people of the group with an interest in the project.

The question of whether to drop the borrowers fee to the ZX81 library was discussed at length. After much discussion, it was agreed to charge a \$1.00 deposit, refundable upon return of the tape. The question of a 2068 & a QL library was also raised. Glenn Read mentioned that he had an alignment tape he had developed for doing Azimuths & Wow and Flutter. He is going to make this available to the group.

Wilf once again took the floor to describe the Hi-Res & Extended Basic by Gregory Harder of Denver CO, as well as his own NOVA multitasking, extension to the ZX video display which sports a clock, Basic trace, & memory window.

Al Wright, ex-prez & robotics enthusiast, stood to advertise the last Robotics course by Karl Brown which is beginning in Jan. at VVI. If you want to take the course, its now or never.

A disgruntled 2068 member stood to complain that there was not enough 2068 content to the club. In general, the point was granted, with the proviso being that its your club; ie. its up to you! This discussion brought together a group who were discussing a 2068 library. The organized portion of the meeting dissolved to general mayhem & Wilf's NOVA demo.

Listed below, in no particular order, is a list of suppliers of Software, Hardware, and all manner of other goodies for the TS family of fine computers. Magazines are highlighted thusly "M". This list is a little dated and a few suppliers might have 'folded their tent, etc.,' but almost all should respond to a request for a catalog. A list of QL suppliers will be printed next issue.

*SOFTWARE
THOMAS B. WOODS
P.O. BOX 64
JEFFERSON, NH 03583

*HACKSEL ELECTRONICS
247 QUEEN ST. WEST
TORONTO, ONT. M5W 1Z4
CANADA

*THE JOHN OLIGER CO.
11601 WHIDBEY DR.
CUMBERLAND, IN 46229

*WMJ DATA SYSTEMS
4 BUTTERFLY DRIVE
HAUPPAUGE, NY 11788

*CTM
CHET LAMBERT, W4WDR
1704 SAM DRIVE
BIRMINGHAM, AL 35235

*SYNCWARE NEWS
P.O. BOX 64
JEFFERSON, NH 03583

*TIME DESIGNS
29722 HULT RD.
COLTON, OR 97017

*HAL-TRONIX, INC.
P.O. BOX 1101 - DEPT R
SOUTHGATE, MICH. 48195

*JRC SOFTWARE
P.O. BOX 448
SCOTTSBURG, IN 47170

*BYTE POWER
1748 MEADOWVIEW AVE.
PICKERING, ONT L1V 3G8
CANADA

*ENGLISH MICRO CONNECTION
15 KILBURN COURT
NEWPORT, RI 02840

*BUDGETSOFT COMPUTERS
230 MAIN STREET
RUSHVILLE, IN 46173

*CURRY COMPUTER
P.O. BOX 5607
GLENDALE, AZ 85312-5607

*ZEBRA SYSTEMS, INC
78-06 JAMAICA AVE.
WOODHAVEN, NY 11421

*FOOTE SOFTWARE
P.O. BOX 14655
GAINESVILLE, FL 32604

*LARKEN ELECTRONICS
RR 2
NAVAN, ONT K4B 1H9
CANADA

*MARKEL ENTERPRISES
P.O. BOX 2392
SECAUCUS, NJ 07094-0992

*BILL JONES, GULF MICRO
1317 STRATFORD AVE.
PANAMA CITY, FL 32404

*T-S HORIZONS
2002 SUMMIT STREET
PORTSMOUTH, OHIO 45662

*A.F.R. SOFTWARE
204-1605 PENNSYLVANIA AVE
MIAMI BEACH, FL 33139

*SHARPS, INC.
RT. 10, BOX 459
MECHANICSVILLE, VA 23111

*SUNSET ELECTRONICS
2254 TARAVAL STREET
SAN FRANCISCO, CA 94116

*BEAVER SOFTWARE
999 MUNROE AVE.
WINNIPEG, MAN R2K 1J4
CANADA

*KNIGHTED COMPUTERS
707 HIGHLAND ST.
FULTON, NY 13069

*VERN TIDWELL
1303 WHITEHEAD ST.
KEY WEST, FL 33040

*C.W. ASSOCIATES
419 N. JOHNSON STREET
ADA, OHIO 45810

*RMG ENTERPRISES
1419 1/2 7TH STREET
OREGON CITY, OR 97045

*LENKE SOFTWARE
2144 WHITE OAK
WICHITA, KS 67207

*DAMCO ENTERPRISES
67 BRADLEY CT.
FALL RIVER, MA 02720

*NOVELSOFT
106 7TH STREET
TORONTO, ONT M8V 3B4
CANADA

*AERCO
BOX 18093
AUSTIN, TX 78760

*SOFTGEMS
P.O. BOX 119
MAYVILLE, NY 14757

*SIMULUSION-H2
BOX 2382
LA JOLLA, CA 92038

*BUDGET ROBOTICS
BOX 18616
TUCSON, AZ 85731

*H.C.S. SOFTWARE
P.O. BOX 1754
PORTSMOUTH, OH 45662

*KAMREC SYSTEMS
27366 BLUM
ROSEVILLE, MI 48066

*ELECTRET SCIENTIFIC CO.
P.O. BOX 4132
STAR CITY, WV 26505

*BYTE-BACK INC.
RT4 BOX 54
LEESVILLE, SC 29070

*WEYNIL CORP.
BOX 5904
BELLINGHAM, WA 98227-5904

*TOM COLE
15-1314 SPEIGHT
WACO, TX 76706

#####

be sure to try this one!!

1 REM "My Favourite Triangle"
by D.F.U. Sincus News Oct/85; r
eprinted from Cincinnati TS User
's Newsletter

```
10 FOR a=1 TO 29: READ x,y,x1,
y1: PLOT x,y: DRAW x1,y1
```

15 NEXT a: PAUSE @: CLS

```

20 RESTORE 100: FOR a=1 TO 29:
READ x,y,x1,y1: PLOT x-25,y+20:
DRAW x1,y1: NEXT a

```

```
100 DATA 48,88,0,-12,48,76,84,-  
42,48,88,72,-36,48,88,84,42,132,  
130,12,-6,144,124,0,-6
```

```

118 DATA 144,124,-68,-34,76,98,
12,-6,134,34,12,6,146,48,8,6,132
,34,8,18,128,52,8,6,98,88,8,-12,
98,76,84,-42

```

120 DATA 90,88,72,-36,90,88,42,
21,174,130,12,-5,166,124,0,-6,17
4,130,-30,-15,174,126,-30,-15,18

6,124,-40,-20,118,90,44,-22
130 DATA 176,34,10,5,186,39,0,8
4,174,34,0,72,162,52,0,48,132,84
0,24,120,90,0,12,144,77,0,40

Snoopers kept from data

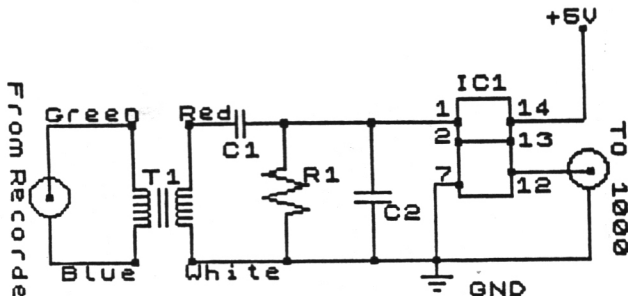
LONDON, Ont. — Encryption devices that protect PC and mainframe users from data eavesdroppers over communication channels are available from 3M Canada.

The "Cryptkey" scrambler units range from standalone units to a remote version and a central site device that can handle up to 740 simultaneous, individually-encrypted conversations.

Terrestrial and satellite microwave circuits are used by all long-distance carriers to complete telephone calls. Encryption protects sensitive data from interception.

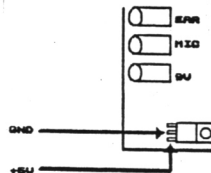
by VINCE LEE, VSUG

OCT/86 NEWSLETTER HAD A GREAT IDEA FOR A SIGNAL BOOSTER FOR TAPE LOADING ON THE 2068. IT CONSISTED OF JUST ONE PART - AN AUDIO TRANSFORMER. UNFORTUNATELY THE BOOSTER'S SIGNAL WAS SAID TO BE TOO HIGH FOR SAFE USE ON THE TS1000. HERE'S ONE SOLUTION....



SCHEMATIC

- on IC1 tie pin 2 to pin 13
- 5V can be tapped off the regulator inside the 1000



PARTS LIST

- T1 -- AUDIO TRANSFORMER (R5 273-1388)
- IC1 - 74LS14 SCHMITT - TRIGGER (ACTIVE)
- C1 -- 0.02 μ F MONO CAP
- C2 -- 2200 pF MONO CAP
- R1 -- 2.7 K
- MISC: - EARPHONE PATCHCORD
- PERFBORD TO MOUNT CIRCUIT
- 14 PIN IC SOCKET

THE FINAL STEP WILL BE TO CALIBRATE THE NEW VOLUME SETTING FOR TAPE LOADINGS. WATCH THE SCREEN JUST BEFORE A PROGRAM LOADS AND ADJUST THE VOLUME ON THE RECORDER FOR...

- ON A NORMAL LOAD: THE SCREEN DISPLAY SHOULD SHOW A PATTERN OF TWO HORIZONTAL LINES NEAR THE MIDDLE THIRD OF THE SCREEN AMONG THE HERRING BONE PATTERN.

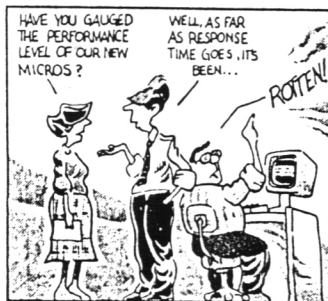
- ON SDS, QSAVE, QUICKTAPE, ETC: A HORIZONTAL SNOW BLIZZARD PATTERN SHOULD APPEAR.

IT LOADS SDS, QSAVE, ETC, PROGRAMS PERFECTLY EVERY TIME. THERE'S EVEN A SLIGHT IMPROVEMENT ON THE RECORDING LEVEL ON THE J.I.L. COMPUDECK.

%%%

dB

BY RICH TENNANT



TIMEX TIPS
by Chuck Dawson

QUESTION: Can you explain the term RLE graphics?

ANSWER: R.L.E. stands for RUN LENGTH ENCODED graphics, which probably does not tell you a lot. The idea is to take a screen full of graphic information (usually 256 dots across by 196 dots high) and turn the information into ASCII characters which can then be sent via modem to other computers. At the other end, the ASCII characters are turned back into a visible screen which can be SAVED. This is not just a system for use with Timex-Sinclair computers, but is in wide use with various makes. There are several public domain programs that encode and decode the screen information to and from RLE format. Most of the BASIC programs will ignore the bottom two print lines since the PLOT command will not work there. Machine code decoders can use the bottom lines. If you would like to write your own program, here are the basics: First, the encoding starts with capital GH to mark the beginning of the file. Then, the encoding program starts at the upper left corner of the screen and counts the number of black dots that appear in a row, counting to the right. Let's say there are three black dots and then a white dot followed by two more black dots. Since we are going to use ASCII characters for our encoding (space thru copyright or CHR\$ 32 thru 127), we are going to assign space with the value zero, exclamation with the value one, quotes with the value two, and so on down to copyright with the value of 95. Therefore, our first encoded character will be # because it has a value of three followed by ! because it is one and finally a " because it represents two. This counting of black dots and white dots continues across the screen. When the right edge of the screen is reached, drop to the next line at the far left and keep counting. That is, five black dots at the end of a line followed by three black dots at the beginning of the next line would be encoded as an eight. If we need a value of more than 95, (like if the whole top line is black dots), then we encode 95 for black, zero for white, and 95 more for black and so on. The last character in the file is not ASCII but is a CHR\$ 7 (bell). A complicated picture may easily take much more memory space than a SCREEN\$ but keep in mind that this system is compatible with other makes of computers and is easily transmitted via modem systems which only accept ASCII characters. Examples of encoded pictures are available from many BBSs and are usually named with the suffix RLE (A picture of Brooke Shields might be named BROOKE.RLE). On CompuServe you can GO PICS at any ! prompt. This method of receiving and decoding graphics adds a whole new dimension to computing.

1 REM reprinted from the Nov/86 SLUG newsletter of the Sinclair Users group of Louisville, KY.

2 REM for the 2868 in SPECTRUM mode.

10 REM *PICTURE TRANSFORMATION PROGRAM*

20 REM ** this program doesn't do much except show a neat visual effect

30 REM *Clear area for machine code and tables*

40 CLEAR 45055

50 REM **load machine code into memory (8000h Upwards)

60 GO SUB 1110

70 RESTORE 870

80 READ steps, points, lines, shapes

90 LET s=2*shapes

100 REM **Byte tables start at C000h

110 LET s=49152

120 LET c=s*points

130 LET l=c*points

140 LET p=l+2*lines

150 LET n=p+2*points

160 LET steps=steps-1

170 LET points=points-1

180 LET lines=lines-1

190:

200 REM **Poke the table start locations**

210 POKE 45065, INT (l/256): POK E 45064, INT (l-PEEK (45065)*256)

220 POKE 45067, INT (n/256): POK E 45066, INT (n-PEEK (45067)*256)

230 POKE 45069, INT (p/256): POK E 45068, INT (p-PEEK (45069)*256)

240 POKE 45074, lines+1

250 POKE 45075, points+1

260 POKE 45077, INT (c/256): POK E 45076, INT (c-PEEK (45077)*256)

270 POKE 45079, s

280:

290 REM **Read the coordinates for points in each shape

300 FOR i=0 TO points

310 FOR j=0 TO shapes-1

320 READ x, y

330 POKE (s+i+2*j), x

340 POKE (s+i+2*j+1), y

350 NEXT j: NEXT i

360:

370 REM ** Calculates offsets between shapes for each point

380 FOR i=0 TO lines

390 READ pt1, pt2

400 POKE (l+2*i), pt1

410 POKE (l+2*i+1), pt2

420 NEXT i

430:

440 FOR i=0 TO points

450 FOR j=0 TO shapes-1

460 LET k=j+1: IF k=shapes THEN

LET k=0

470 LET cx=(PEEK (s+i+2*k)-PE

EK (s+i+2*j))/steps

480 LET cy=(PEEK (s+i+2*k+1)-

PEEK (s+i+2*j+1))/steps

490 POKE (c+i+2*j), INT (cx+0.

5)

500 POKE (c+i+2*j+1), INT (cy+0.5)

510 NEXT j: NEXT i

520:

530 REM ** Set previous shape number to zero

540 LET y=0

550:

560 REM ** Set the next shape points to zero for first plot

570 FOR i=0 TO points

580 POKE (n+2*i), 0

590 POKE (n+2*i+1), 0

600 NEXT i

610:

620 CLS

630:

640 REM ** MAIN SHAPE LOOP **

650:

660 REM ** x=present shape; y=next shape

670 LET x=y

680 POKE 45078, x

690 LET y=x+1: IF y=shapes THEN

LET y=0

700 REM ** Set start coordinate s for shape x

710 FOR i=0 TO points

720 POKE (p+2*i), PEEK (s+i+2*x)

730 POKE (p+2*i+1), PEEK (s+i+2*x+1)

740 NEXT i

750:

760 REM ** Main transform shape loop

770 FOR k=0 TO steps

780 REM ** Call machine code

790 RANDOMIZE USR 45080

800 REM ** Delay loop at start of transformation

810 IF k=0 THEN FOR j=1 TO 200:

NEXT j

820 NEXT k

830 GO TO 670

840:

850:

860 REM ** SHAPE DATA **

870 DATA 11, 19, 19, 8

880 DATA 50, 130, 150, 10, 50, 100, 1

50, 130, 70, 30, 50, 150, 10, 50, 15

0

890 DATA 100, 150, 50, 10, 50, 150, 1

40, 110, 70, 10, 50, 150, 50, 10, 70, 150

900 DATA 150, 130, 50, 30, 70, 150, 1

00, 130, 50, 10, 60, 150, 50, 30, 70, 90

910 DATA 150, 90, 90, 30, 70, 100, 70

, 90, 50, 30, 70, 150, 90, 30, 100, 90

920 DATA 100, 70, 90, 50, 70, 40, 70,

70, 50, 50, 70, 150, 90, 50, 130, 150

930 DATA 70, 50, 90, 100, 130, 150, 1

00, 30, 50, 100, 80, 100, 90, 100, 150, 1

50

940 DATA 100, 30, 90, 130, 150, 150,

140, 50, 50, 150, 90, 100, 90, 130, 120,

90

950 DATA 140, 50, 50, 130, 150, 100,

150, 30, 100, 150, 110, 100, 50, 130, 14

0, 80

960 DATA 150, 30, 50, 150, 150, 50, 1

30, 10, 130, 150, 120, 100, 50, 150, 150

, 60

```

970 DATA 100,10,150,150,150,10,
98,10,150,150,130,150,150,150,15
0,50
980 DATA 50,30,150,130,130,10,6
0,30,150,130,130,150,150,130,150
,40
990 DATA 50,70,110,130,130,100,
50,60,130,130,140,150,110,130,14
0,20
1000 DATA 100,90,110,100,130,120
,50,100,100,130,150,150,110,100,
00,10
1010 DATA 130,110,110,50,70,10,6
0,130,70,130,150,150,110,50,50,1
0
1020 DATA 100,130,110,30,50,10,9
0,150,70,100,110,10,110,30,50,50
1030 DATA 60,110,150,30,50,50,13
0,150,70,50,90,10,150,30,50,100
1040 DATA 0,0,0,0,0,0,0,0,0,0,10
0,50,0,0,70,70
1050 DATA 0,0,0,0,0,0,0,0,0,0,90
,00,0,0,130,50
1060 DATA 0,0,0,0,0,0,0,0,0,0,11
0,00,0,0,70,30
1070 DATA 0,1,1,2,2,3,3,4,4,5,5,
6,6,7,7,8,8,9,9,10
1080 DATA 10,11,11,12,12,13,13,1
4,14,15,15,0
1090 DATA 16,17,17,18,18,16
1100:
1110 REM ** Machine code load ro
utine
1120 LET loc=45056
1130 LET check=0
1140 CLS : PRINT AT 10,10;"PLEAS
E WAIT"
1150 RESTORE 1230
1160 READ n
1170 IF n>=0 THEN POKE loc,n: LE
T loc=loc+1: LET check=check+n:
GO TO 1160
1180 IF check=29989 THEN RETURN
1190 PRINT "Checksum is ";check;
"
1200 PRINT "Should be      29989."
1210 PRINT "Check program and re
run."
1220 STOP
1230 DATA 0,0,0,0,0,0,0,0
1240 DATA 0,0,0,0,0,0,0,0
1250 DATA 0,0,0,0,0,0,0,0
1260 DATA 50,10,176
1270 DATA 42,0,176
1280 DATA 34,14,176
1290 DATA 42,10,176
1300 DATA 34,16,176,245
1310 DATA 205,60,176
1320 DATA 42,12,176
1330 DATA 34,16,176
1340 DATA 205,60,176
1350 DATA 42,14,176,35
1360 DATA 35,34,14,176
1370 DATA 241,61,32,225
1380 DATA 205,230,176,201
1390:
1400 DATA 237,91,14,176
1410 DATA 26,203,39,22
1420 DATA 0,95
1430 DATA 42,16,176,25
1440 DATA 70,35,70,197
1450 DATA 237,91,14,176
1460 DATA 19,26,203,39
1470 DATA 22,0,95

```

```

1480 DATA 42,16,176,25
1490 DATA 70,35,70,225
1500 DATA 205,109,176,201
1510:
1520 DATA 197,205,199,176
1530 DATA 193,17,1,1
1540 DATA 120,140,40,4
1550 DATA 21,21,237,60
1560 DATA 71,121,149
1570 DATA 40,4,29,29
1580 DATA 237,60,79,176
1590 DATA 200,121,164,229
1600 DATA 90,107
1610 DATA 34,4,176
1620 DATA 46,0,56,4
1630 DATA 101,107,72,71
1640 DATA 34,6,176
1650 DATA 96,120,203,63
1660 DATA 111,125,129
1670 DATA 56,3,104
1680 DATA 56,8,144,111
1690 DATA 237,91,4,176
1700 DATA 24,5,111
1710 DATA 237,91,6,176
1720 DATA 227,124,130,103
1730 DATA 125,131,111,197
1740 DATA 205,199,176,193
1750 DATA 227,37,32,220
1760 DATA 225,201
1770:
1780 DATA 125,230,192
1790 DATA 31,55,31
1800 DATA 15,173,230,240
1810 DATA 173,07,124,7
1820 DATA 7,7,173
1830 DATA 230,199,173,7
1840 DATA 7,95,124
1850 DATA 230,7,71,4
1860 DATA 62,254,15
1870 DATA 16,253,71,26
1880 DATA 160,47,18,201
1890 DATA 50,19,176
1900 DATA 245,245,61,203
1910 DATA 39,22,0,95
1920 DATA 42,12,176,25
1930 DATA 126,42,10,176
1940 DATA 25,119,19
1950 DATA 42,12,176,25
1960 DATA 126,42,10,176
1970 DATA 25,119,241,61
1980 DATA 27,213,95
1990 DATA 50,23,176
2000 DATA 33,0,0
2010 DATA 6,8,41,23
2020 DATA 40,1,25
2030 DATA 16,249,237,91
2040 DATA 20,176,25,237
2050 DATA 91,22,176
2060 DATA 22,0,203,35
2070 DATA 25,60,77
2080 DATA 42,12,176,209
2090 DATA 25,10,63,134
2100 DATA 119,35,3,10
2110 DATA 63,134,119,241
2120 DATA 61,32,172,201
2130 DATA -99: REM ** Dummy end
of data value
9999 CLEAR : SAVE "pictrans" LIN
E 1: PRINT "Rewind tape""Press
play to verify": VERIFY "": PRI
NT "OK"

```

Our resident QL guru provides a list
of QL-oriented periodicals.

Quanta - The official organ of the QUANTA (QL Users and
Tinkerers Association) comes out monthly. Contains
international information of all sorts & levels. Generally
the best source of the real dirt. Has a Library of 34+
microdrives. Membership is by subscription to Quanta. Costs
£14.00 per year. Write to:

Brian Pain
24 Oxford Street
Stony Stratford
Milton Keynes MK11 1JU
England

Quantum Levels - A North American publication put out
by the Syncware folk, Thomas Bent, Fred Nachbaur etc. Started
in August/86. I have only seen one issue so far; it was a mix
of information new users would find useful. Costs US\$18.95
for 6 issues per annum (plus \$3.00 for postage to Canadians.)
Available from:

Thomas B. Woods
Quantum Levels
P.O. Box 64
Jefferson, N.H. 03583
USA

QL Report - A monthly dealers viewpoint put out by Curry
Computers. If you have lots of money to spend this will tell
you what's available. Not too much other useful info. Cost is
US\$15.00 per annum. Write to:

Curry Computer
P.O. Box 5607
Glendale, AZ 85312-5607
USA

Sinclair QL World - A monthly glossy Mag from England.
The only newstand Magazine dedicated to the QL. All sorts of
different articles, to all different levels. Lots of
advertising. A good place to find out what's available in
England. Incidentally this magazine is the result of QL World
buying out QL User. Available from Curry Computer for US\$4.00
per issue & \$1.62 postage each. Otherwise you can subscribe
for a mere £45.00 to:

Quadrant Subscription Services
Oakfield House, Perrymount Road
Haywards Heath, West Sussex 0444 459188
England

%%%

One of the first things you will want to do once you get your new QL up & running is get a printer working with it. Among the ports on the back of the QL are two Serial ports, but no Parallel port. Most printers use a Centronics style interface, so that a serial to parallel converter is called for. There are several of these devices on the QL market as well as several buffer/converters on the general market, however a serial to parallel converter can easily be whipped up by do-it-yourself'ers. The device that makes this simple is the UART. The one I have used is the AY3-1015D, but the IM6402 could just as easily be used. The only restriction is that the serial parameters(ie. Stop bits, Word length, Baud rate) must be switchable, rather than set by internal registers.

When I first drew up this design, a year or so ago, I did not know of the MAX232 chip. I have used that chip in this version & eliminated the need for a +12/-12 volt charge pump, as well as the separate 1488 & 1489 line driver & receiver. This chip is available in Vancouver from RAE. I have included a xerox of the pinout & pin description. You will notice in Figure 1 that there are a bunch of Capacitors hanging off that one chip & these are used precisely to hold the +12/-12 generated.

Although it might seem that the 74LS373 is superfluous; in practice I found that once the Printer buffer is full & the printer sets the BUSY signal to tell the computer to send no more data, without the '373, the interface would drop a character.

I used the 8116 & switches arrangement because I wanted to be able to set the BAUD rate. The QL is capable of 75,300,600,1200,2400,4800,9600 full duplex & 19200 half duplex, although I don't think many printers will go 19200 baud. If a person decided they were going to use only one baudrate eg. 9600 baud, the crystal & 8116 (the most expensive parts) could be replaced with an RC timing circuit using a 555 timer or a CMOS 4001 among others.

One of the wonderful little joys of interfacing which the QL will introduce you to is the difference between DCE & DTE devices in the RS232 standard. It has become traditional among QL'ers for some reason lost in the mists of time to use SKR1 for the printer and reserve SKR2 for modems & other goodies. This means that the TxD shown going to the MAX232 chip will be connected to pin 3=RxD of SKR1. DTR coming from the MAX232 will be connected to pin 4=DTR. This topic is almost described in CONCEPTS under Communications.

Do not omit the ground lines. QL ground from the SKR1 port is pin 1. There is also printer ground, & power supply ground which all must be connected to the interface ground.

The Centronics standard (I have included a xeroxed description) defines more lines than one actually needs to use. One can commonly get by with using only STROBE, BUSY, & the DATA lines. This works fine for Epson printers.

The timing of the 74LS221 multivibrator strobes is set by the RC network on pins 14 & 15. The width of this pulse is approximately equal to $.69(R \cdot C)$.

$$\begin{aligned} T &= .69 (R \cdot C) \\ &= .69 (2200 \cdot 10^{-9}) \\ &= 1.5 \text{ E-6} \end{aligned}$$

This timing is not critical & will work fine as long as it is in this neighbourhood. The strobe must be long enough for the UART and the printer to see it; while not being so long that characters are dropped. At 9600 baud there might be 960 characters in a second which means $1/960$, approx 1E-3 , between characters. Well within safety range. The minimum width for the printer is $.5\text{E-6}$ (500 nsec.) and for the UART it is $.2\text{E-6}$ (200 nsec.)

Note that on the UART pins 34->39 are all tied high. This has the effect of setting the Serial parameters expected to 8 data bits, 2 stop bits, no parity.

HOW IT WORKS

To begin with the printer buffer is empty, so the printer sets BUSY low to signify it is ready to accept data. This signal goes to the 74LS221 at 1A enabling other (1B) input. The signal also goes directly back to the QL through the MAX232 to tell the QL to go ahead. The QL then sends a serial byte with start bit & stop bits through the MAX232 to the UART. The UART catches this serial stream & converts it back into a parallel form. As soon as the UART has a complete byte, it sets the DAV (data available) pin which kicks the 74LS221 at 1B and causes it to set Q high enabling the 74LS373 buffer's input latch while simultaneously strobing the printer with NOT-Q. This signal also clears the UART for the next oncoming byte. The Output enable of the 74LS373 is tied low so it is always on. The data from the UART passes through it virtually instantaneously. After the RC time, the Q and NOT-Q signals revert to normal.

This process continues until the printer fills up at which time it asserts the BUSY signal. This has the effect of taking 1A on the 74LS221 high and preventing any strobes, as well as telling the QL via DTR to stop. There might at this point be a byte in transmission. If this is so, the UART will hold it until BUSY goes low at which point the cycle repeats.

If you run into any problems with this circuit, give me drop me a line C/O the editor & we'll see if we can get it sorted out.

Due to space/time limitations
Harvey's article will be
continued next issue.....Ed.

TV TEST PATTERNS

by Ken Abramson

This program can be used to set up black & white and color TV sets (or monitors). The line patterns generated will permit you to adjust for centering, vertical height, horizontal width, vertical & horizontal linearity, and convergence (color fringing).

WARNING: DO NOT ATTEMPT TO ADJUST CONVERGENCE ON COLOR TV'S UNLESS YOU KNOW WHAT YOU ARE DOING (e.g. - have a service manual for that particular set!!! These adjustments are very complicated and often require special non-magnetic tools.

1 REM TV TEST PATTERNS
2K T/S 1000
BY KEN ABRAMSON

```

2 LET Z=2000
4 LET Q=16418
6 LET P=NOT PI
8 GOTO Z
10 NEXT U
12 POKE Q,2
14 SLOW
16 PAUSE 4E4
18 GOTO Z
20 PRINT AT U,P;"
210 GOTO 10
300 PRINT AT U,P;"
310 GOTO 10
400 PRINT AT U,P;"
410 GOTO 10
500 PRINT AT U,P;"
510 GOTO 10
999 GOTO Z
1000 SAVE "PATTERNS"
2000 PRINT AT 5,5;"PATTERN?"
2010 SLOW
2020 PRINT
2030 PRINT "0- DARK CROSS-HATCH"
2040 PRINT "1- LIGHT CROSS-HATCH"
2050 PRINT "2- HORIZONTAL LINES"
2060 PRINT "3- VERTICAL LINES"
2070 PRINT "4- WHITE DOTS"
2080 PRINT "5- BLACK DOTS"
2090 PRINT
3000 PRINT "ENTER NUMBER OF DESI
RED PATTERN"
3010 IF INKEY$="" THEN GOTO 3010
3020 LET N$=INKEY$
3030 FAST
3040 CLS
3050 POKE Q,P
3060 FOR U=P TO 23
3070 IF CODE N$<28 OR CODE N$>37
THEN GOTO Z
3080 IF N$="0" THEN GOTO 20
3090 GOTO VAL N$*100

```

1 REM Contributed by USUG Mem
ber Joe Jenkins, Amarillo, Texas

```

10 INK 0: PAPER 7: BORDER 7: I
NVERSE 0: CLS
15 LET a=0
200 LET i=120: LET j=-.75: LET
l=75
210 FOR k=112 TO 40 STEP -8
220 LET j=j+7.5
230 PLOT i,j: DRAW k-i,l-j: NEX
T l
240 LET i=32: LET j=75: LET k=1
250 FOR l=82.5 TO 150 STEP 7.5
260 LET i=i+8
270 PLOT i,j: DRAW k-i,l-j: NEX
T l
280 LET i=120: LET j=157: LET l
=75
290 FOR k=128 TO 200 STEP 8
300 LET j=j-7.5
310 PLOT i,j: DRAW k-i,l-j: NEX
T l
320 LET i=208: LET j=75: LET k=
120
330 FOR l=67.5 TO 0 STEP -7.5
340 LET i=i-8
350 PLOT i,j: DRAW k-i,l-j: NEX
T l
355 LET a=NOT a
360 INVERSE a
370 GO TO 200

```

```

1 REM ..A STUDY IN CURVES
2 REM ..by GERTIE ANDERSSON
3 REM REPRINTED FROM THE NOV/
DEC ISSUE OF TIMELINEZ
4 REM THE NEWSLETTER OF THE
THREE T/S USER GROUPS IN THE
SAN FRANCISCO BAY AREA.
70 LET Z=2
80 LET P=.0625
90 FOR K=1 TO 2
95 GO SUB 500
100 LET X=100: LET Y=152
110 LET A=50: LET U=0
130 FOR J=1 TO 8
135 PRINT AT Z,0,P: LET Z=Z+2
140 FOR I=1 TO 2
150 PLOT X,Y
160 DRAW -A,U,P;PI
170 PLOT X,Y
180 DRAW A,U,P;PI
190 LET X=X+100: NEXT I
200 LET X=100: LET Y=Y-16: LET
P=P+.0625
220 NEXT J
230 LET P=P+.0625
240 PAUSE 100
250 COPY : CLS
255 LET Z=2
260 NEXT K
499 STOP
500 FOR I=0 TO 21
510 FOR J=0 TO 31
520 PRINT AT I,J;" ";
530 NEXT J: NEXT I
540 PRINT AT 0,0;
550 RETURN

```

10 REM program to calculate
Earth satellite orbital periods
by Darrell Frey and reprinted
from the Nov/86 H.A.T.S.
newsletter.

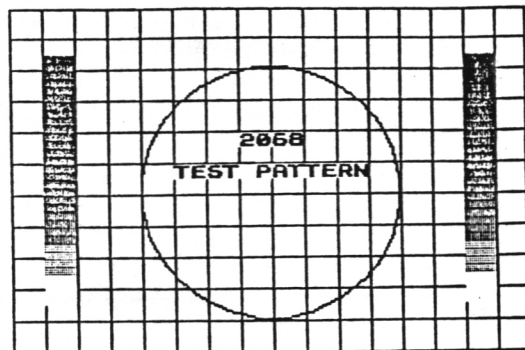
```

20 PRINT "      Satellite Orbita
1 Periods"
30 PRINT
60 LET c=5.245E-09
70 LET t=0
80 LET r=6378
90 LET h=INT ((RND*8000000000)+
1)
100 LET p=c*SQR (h+3)
110 LET p1=p
120 PRINT "How high must a sate
lite be (in"
130 PRINT "kilometers) to orbit
the Earth?"
140 PRINT "every ";
160 GO SUB 310
170 INPUT h1
172 PRINT "
175 PRINT AT 14,0;h1
180 LET t=t+1
190 LET h1=1000+(h1+r)
200 LET p1=c*SQR (h1+3)
210 IF ABS (p1-p)/p<1E-03 THEN
GO TO 280
220 PRINT
230 PRINT AT 9,0;"Not quite. Yo
ur satellite has a"
240 PRINT "period of ";
250 GO SUB 310
260 PRINT "Try again."
270 GO TO 170
280 PRINT AT 16,0;"+++++ Corect
++++"
290 PRINT "You got it in ";t;"
tries"
300 STOP
310 LET p4=INT (p1/1440)
320 LET p5=INT (p1-1440*p4)
330 IF p4=0 THEN GO TO 350
340 PRINT p4;" Days, ";
350 LET p2=INT (p5/60)
360 LET p3=INT (p5-60*p2+.5)
370 PRINT p2;" Hours, "
380 PRINT p3;" Minutes."
390 RETURN
998 STOP
999 SAVE "Period" LINE 1

```

The following is reprinted from the
Newsletter of the ZX Spectrum Users
of Western Australia.

The program below will produce a
test pattern which you could use to
adjust your TV set to produce the
sharpest image with the best colour.
When you have finished entering the
program, simply RUN and you should
see the test card appear on the
screen.



```

1 REM ----2068 & SPECTRUM
2 REM ---colour TV test patte
rn
10 FOR i=0 TO 240 STEP 16
20 PLOT i,0
30 DRAW 0,175
40 NEXT i
50 FOR i=0 TO 175 STEP 16
60 PLOT 0,i
70 DRAW 255,0
80 NEXT i
90 PLOT 0,175
100 DRAW 255,0
110 DRAW 0,-175
120 CIRCLE 127,81,64
130 PRINT AT 10,10;"TEST PATER
N"
140 PRINT AT 8,14;"2068"
150 FOR c=0 TO 7
160 INK c
165 REM "8"= Graphics mode,Pres
s C/Shift,8
170 PRINT AT 3+2*c,2;"88"
180 PRINT AT 4+2*c,2;"88"
190 PRINT AT 3+2*c,28;"88"
200 PRINT AT 4+2*c,28;"88"
210 NEXT c
220 INK 0

```

• BUY
• SELL
• SWAP

REMEMBER: Classifieds
are free to members.
...6 lines max. 32 col.

New Year's reflections on a changing industry

New Year's Eve is traditionally a time for reflection. A time to reflect on what has been. To look ahead and consider what might become.

Computers are a good topic for reflection because the industry changes so rapidly.

So, first reflection. It doesn't take long to become knowledgeable — in a generic sense — about computers. Although the industry changes rapidly, there are still only three components to a computer system — the hardware, software and peripherals. Once you understand how these interact with each other, you're more than half way there.

Becoming familiar with the computer industry, both on an international and local level, means becoming familiar with a few key players.

When I first began writing this column two years ago, software developers and retail outlets were springing up continually. A number of these companies, opened and closed their doors within a year. Those that remain seem to be in it for the long haul. End-users can now track a company's performance before buying their services.

But while it doesn't take long to get to know the industry, it takes forever to understand printer drivers and figure out how to get a printer to support a sophisticated word processing program.

Second reflection. In the last few years, Vancouver has truly become a high-tech centre. Vancouver-based software developers have managed to infiltrate both national and international markets with their products.

And as the industry matures, another industry builds itself around it. Magazine publishers have come out with about 30 different computer-related magazine titles, and writers have written both tech-

nical and generic books on everything from buying a computer system to programming with Unix.

All of the major accounting firms now have a computer consulting arm, and anyone with a background in computers is now an independent consultant.

Then there are the stock brokers and promoters regularly bringing high tech firms public. And there isn't a newspaper that doesn't have a regular feature about computers.

Third reflection. Prices. They never really came down the way pundits predicted. It's true, you can now buy a personal computer for less than you could two years ago, but the speed of computers has increased so much it would be shortsighted not to buy an XT or AT, which happen to retail for the same price or more than personal computers did two years ago.

While your money buys a lot more, you still need a lot of money to piece together the "minimum" system. When all is said and done, your new microcomputer workstation will cost \$5,000.

This is probably bad news for anyone who has put off buying a system until the prices came down.

Next reflection. Everyone said 1986 was going to be the year of the laptop computer. It wasn't. While everyone would like to have one, it's difficult to justify the cost for the convenience.

Now everyone is saying 1987 will be the year for desktop publishing. I go on record as saying it won't happen until the bugs get worked out of the new software — which will be 1988.

Final reflection. The computer industry joke of "what's the difference between a used car salesperson and a computer salesperson" (answer: the used car salesperson knows when he's lying), is no longer true. Now, so does the computer salesperson.



COMPUTERS

PATTI SCHOM-MOFFATT

Here is a short utility to use with the 1000 and the 1500. It will tell you 5 things:

- 1) Ram size
- 2) Program size
- 3) Display file size
- 4) Memory used by variables
- 5) Spare memory

Just tag it onto the end of your program and call it when needed. This will show you how your memory is used up, as well as how much is left. Access by GOSUB 9200.

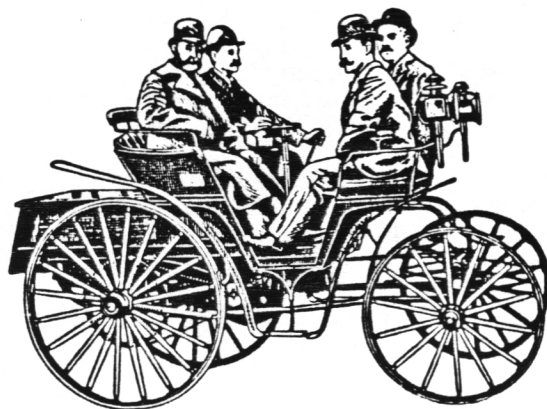
```
9200 PRINT "RAM "; ((PEEK 16388+2
56+PEEK 16389)-16384)/1024;"K"
9205 PRINT "PROGRAM ";PEEK 16386
+256+PEEK 16397-16509
9210 PRINT "DISPLAY ";PEEK 1640
0+256+PEEK 16401-PEEK 16396-256+
PEEK 16397
9220 PRINT "VARIABLES ";PEEK 16
404+256+PEEK 16405-PEEK 16400-25
6+PEEK 16401
9230 PRINT "SPARE ";PEEK 16386+
256+PEEK 16387-PEEK 16412-256+PE
EK 16413
9240 PAUSE 150
```

```
1 REM JETPLANE JOYSTICK FOR
2068 OR 1000 BY DARRELL FREY
AND REPRINTED FROM THE NOV/86
H.A.T.S. NEWSLETTER
2 REM JOYSTICK MOVEMENTS ARE
OPPOSITE WHAT YOUR FIRST
INSTINCTS TELL YOU.
10 LET T=0
20 LET X=INT (RND*32)
30 LET Y=INT (RND*22)
40 PRINT AT 10,13;"-" < "-"
45 PRINT AT 9,15;"+"
46 PRINT AT 11,15;"+"
50 IF T<>INT (T/2)+2 THEN GO TO
0 80
55 IF X>-1 AND X<32 AND Y>-1 A
ND Y<22 THEN PRINT AT Y,X;" "
60 LET Y=Y+INT (RND*3)-1
70 LET X=X+INT (RND*3)-1
85 IF X>-1 AND X<32 AND Y>-1 A
ND Y<22 THEN PRINT AT Y,X;" "
90 IF STICK (1,2)=8 THEN LET X
=X-1
92 IF STICK (1,2)=4 THEN LET X
=X+1
100 IF STICK (1,2)=2 THEN LET Y
=Y+1
102 IF STICK (1,2)=1 THEN LET Y
=Y-1
130 IF X>-1 AND X<32 AND Y>-1 A
ND Y<22 THEN PRINT AT Y,X;"0"
140 IF STICK (2,2)=1 AND X=15 A
ND Y=10 THEN GO TO 180
150 LET T=T+1
160 PRINT AT 0,0;T
170 GO TO 40
180 PRINT AT 10,15;"X"
190 PRINT AT 20,0;"YOU GOT IT I
N ";T;" SECS"
200 PRINT "TRY AGAIN?"
210 INPUT A$
220 IF A$="N" THEN STOP
230 CLS
240 GO TO 10
998 STOP
999 SAVE "JET" LINE 10
```

Mystery Program

```
10 RESTORE : FOR n=30000 TO 30
049
20 READ a: POKE n,a: NEXT n
30 FOR n=0 TO 21: PRINT "12345
678901234567890123456789012": NE
XT N
40 RANDOMIZE USA 30000
50 DATA 17,254,8,123,7,7,7,95,
33,0,64,1,24,0,126,163,119,35,16
,250,13,32,247,21,32,233,58,141,
92,119,84,93,19,1,192,2,237,176,
58,72,92,119,14,63,237,176,201,0
,0,0
```

#####



by Ken Abramson

It is sometimes useful to examine a program as it is actually stored in the computer's memory, in the form of numbers.

This not only helps one to understand the workings of the computer, but also gives an understanding of how the program is stored (very useful info for efficient programming).

If you wish to examine a little machine code routine (those weird-looking characters in that first REM statement of a larger program), you can easily dump the routine onto your screen or printer by writing a little DUMP PROGRAM within the larger program. In most of the examples given below, once you have obtained the first screenful, you can press COPY to dump it to the printer, and then CONT to get the next screenful.

```
1 REM SIMPLE ONE COLUMN DUMP
```

```
9900 FOR A=ADDRESS 1 TO ADDRESS
9901 PRINT A;"-";PEEK A
9902 NEXT A
```

```
1 REM SINGLE SCREEN, 3 COLUMN
MEMORY DUMP
```

```
9900 FOR A=ADDRESS 1 TO ADDRESS
9901 PRINT A;"-";PEEK A;TAB 11;A
+22;"-";PEEK (A+22);TAB 22;A+44;
"-";PEEK (A+44)
9902 NEXT A
```

```
1 REM FULL ADDRESSING,
THREE COLUMN DUMP
```

```
9900 PRINT "STARTING ADDRESS?"
9901 INPUT A
9902 CLS
9903 LET C=0
9904 PRINT A;"-";PEEK A;TAB 11;A
+22;"-";PEEK (A+22);TAB 22;A+44;
"-";PEEK (A+44)
9905 LET C=C+1
9906 LET A=A+1
9907 IF C=22 THEN LET A=A+44
9908 IF C=22 THEN LPRINT
9909 IF C=22 THEN LET C=0
9900 GOTO 9904
```

```
1 REM MEMORY DUMP
ONE ADDRESS PER LINE,
SIX BYTES PER LINE
```

```
9900 PRINT "STARTING ADDRESS?"
9901 INPUT A
9902 CLS
9903 PRINT A;"-";PEEK A;" ";PEEK
(A+1);" ";PEEK (A+2);" ";PEEK (
A+3);" ";PEEK (A+4);" ";PEEK (A
+5)
9904 LET A=A+6
9905 GOTO 9903
```

by Ken Abramson

A number of people at the last meeting expressed interest in a suggestion made by Wilf Rieger that there be some HARDWARE CLINIC meetings set up to help the membership with some of their hardware problems. These clinic sessions would be open to ALL Sinclair users and would be held at times and places to be arranged (depending on the response).

If you have some problem that is continuously bugging you, here is an opportunity to have it solved and to learn something at the same time! Just fill out the form below, or write your own letter stating your name, computer type, & a description of the problem, and hand it to me at the next meeting or mail it to me at:

6950 Willingdon Ave.,
Burnaby, B.C.
V5J 3R2

NAME: _____

TELEPHONE: _____

COMPUTER
MODEL: _____

PROBLEM: _____

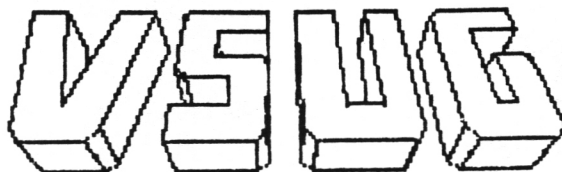
D. ROSS ELECTRONICS

DAVE ROSS

Operator



R.C.M.P.



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PRES.--KEN ABRAMSON

V/PRES.-- ?

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